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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

FIELDS, COURTNEY D

ART UNIT

PAPER NUMBER

2137

DATE MAILED: 02/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/039,595

Applicant(s)

GLEW ET AL

Examiner

Courtney D. Fields

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-20 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 12-19 have been amended.
2. Claims 1-20 are pending.

Response to Arguments

2. Applicant's arguments filed 18 November 2005 have been fully considered but they are not persuasive.
3. Applicant disagrees with the Official Action assessment that signal transmission such as optical, electrical, or air waves are intangible and are not statutory subject matter. The Examiner respectfully disagrees and maintain the present rejection of claims 11-17 and 19-20 under 35 USC 101.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 11-17 and 19-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 11-17 and 19-20 are not limited to tangible embodiments. In view of Applicant's disclosure, specification page 12, lines 5-11 and page 31, lines 16-21, the medium is not limited to tangible embodiments, instead being defined as including both tangible embodiments (e.g., disc) and intangible embodiments (e.g., signal transmissions such as optical, electrical, or air wave). As such, the claim is not limited to statutory subject matter and is therefore non-statutory.

6. A signal transmission medium does not fall within one of the four statutory categories of the invention, (i.e., process, machine, compositions of matter, and manufacture).

7. Per the request of the Applicant, the Examiner provides a thorough detailed explanation which includes references to legal precedents as to why such claims are not deemed statutory.

Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena. O'Reilly, 56 U.S. (15 How.) at 112-14. Moreover, it does not appear that a claim reciting a signal encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in § 101.

First, a claimed signal is clearly not a "process" under § 101 because it is not a series of steps. The other three § 101 classes of machine, compositions of matter and manufactures "relate to structural entities and can be grouped as 'product' claims in order to contrast them with process claims." 1 D. Chisum, Patents § 1.02 (1994). The three product classes have traditionally required physical structure or material.

"The term machine includes every mechanical device or combination of mechanical device or combination of mechanical powers and devices to perform some function and produce a certain effect or result." Corning v. Burden, 56 U.S. (15 How.) 252, 267 (1854). A modern definition of machine would no doubt include electronic devices which perform functions. Indeed, devices such as flip-flops and computers are

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referred to in computer science as sequential machines. A claimed signal has no physical structure, does not itself perform any useful, concrete and tangible result and, thus, does not fit within the definition of a machine.

A "composition of matter" "covers all compositions of two or more substances and includes all composite articles, whether they be results of chemical union, or of mechanical mixture, or whether they be gases, fluids, powders or solids." Shell Development Co. v. Watson, 149 F. Supp. 279, 280, 113 USPQ 265, 266 (D.D.C. 1957), *aff'd*, 252 F.2d 861, 116 USPQ 428 (D.C. Cir. 1958). A claimed signal is not matter, but a form of energy, and therefore is not a composition of matter.

The Supreme Court has read the term "manufacture" in accordance with its dictionary definition to mean "the production of articles for use from raw or prepared materials by giving to these materials new forms, qualities, properties, or combinations, whether by hand-labor or by machinery." Diamond v. Chakrabarty, 447 U.S. 303, 308, 206 USPQ 193, 196-97 (1980) (quoting American Fruit Growers, Inc. v. Brogdex Co., 283 U.S. 1, 11, 8 USPQ 131, 133 (1931), which, in turn, quotes the Century Dictionary). Other courts have applied similar definitions. See American Disappearing Bed Co. v. Arnaelsteen, 182 F. 324, 325 (9th Cir. 1910), *cert. denied*, 220 U.S. 622 (1911). These definitions require physical substance, which a claimed signal does not have. Congress can be presumed to be aware of an administrative or judicial interpretation of a statute and to adopt that interpretation when it re-enacts a statute without change. Lorillard v. Pons, 434 U.S. 575, 580 (1978). Thus, Congress must be presumed to have been

aware of the interpretation of manufacture in American Fruit Growers when it passed the 1952 Patent Act.

A manufacture is also defined as the residual class of product. 1 Chisum, § 1.02[3] (citing W. Robinson, The Law of Patents for Useful Inventions 270 (1890)).

A product is a tangible physical article or object, some form of matter, which a signal is not. That the other two product classes, machine and composition of matter, require physical matter is evidence that a manufacture was also intended to require physical matter. A signal, a form of energy, does not fall within either of the two definitions of manufacture. Thus, a signal does not fall within one of the four statutory classes of § 101.

On the other hand, from a technological standpoint, a signal encoded with functional descriptive material is similar to a computer-readable memory encoded with functional descriptive material, in that they both create a functional interrelationship with a computer. In other words, a computer is able to execute the encoded functions, regardless of whether the format is a disk or a signal.

These interim guidelines propose that such signal claims are ineligible for patent protection because they do not fall within any of the four statutory classes of § 101.

Please be advised that the "Interim Guidelines for Examination of Patent Applications for Subject Matter Eligibility" was signed on Oct 26 and posted on the uspto.gov website. The guidelines were also published in the OG on 11/22/05. The link is: <http://www.uspto.gov/web/offices/pac/dapp/ogsheet.html>

8. Referring to the rejection of claims 1 and 11, the Applicant contends that the prior art (Davis et al.) does not teach nor disclose how the digest of the BIOS signature is decrypted by an embedded key of a chipset or a value capable of being decrypted by an embedded key of a processor. The Examiner respectfully disagrees and asserts that Davis et al. teaches and discloses a technique for verifying if the BIOS code has been illicitly modified, by using a pre-programming cryptographic device. The cryptographic device contains BIOS code, a BIOS certificate and a BIOS signature. The BIOS signature is decrypted with the certificate key which is embedded within the chipset. The chipset is used to fetch instruction to the cryptographic device. The BIOS signature is retrieved from the BIOS cryptographic device by decrypting the BIOS certificate using a root certification key, retrieving a public key from the BIOS signature and using the public key to recover a pre-loaded digest. (See Column 5, lines 4-67, Column 6, lines 1-13)

Referring to the rejection of claim 19, the Applicant contends that the prior art (Davis et al.) does not teach nor disclose a value capable of being decrypted using an key embedded in a chipset. The Examiner respectfully disagrees and asserts that Davis et al. teaches and discloses an initial value used to produce the embedded key located within the cryptographic device. (See Column 4, lines 60-67, Column 5, lines 1-3)

Referring to the rejection of claims 4,13, and 20, Applicant contends that the prior art (Davis et al.) does not teach nor disclose using a SHA-1 hash. The Examiner respectfully disagrees and asserts that Davis et al. teaches and discloses after recovering a pre-loaded digest, the BIOS code undergoes a one-way hash function to

produce a resultant digest. If there is a match, the BIOS code becomes authenticated. (See Column 5, lines 66-67, Column 6, lines 1-19) The one-way hash derives from the Digital Signature Standard, which converts the information of a variable-length into information of a fixed length (i.e., digest) (See Column 2, lines 46-64)

Referring to the rejection of claims 6 and 14, the Applicant contends that the prior art (Davis et al.) does not teach nor disclose a code module or a machine readable medium that has a field to identify/specify an execution point from which a computing device executes code. The Examiner respectfully disagrees and asserts that Davis et al. teaches and discloses identifying when execution of BIOS code should be prevented or accessible by authenticating BIOS code using a cryptographic device as a means for computing. (See Column 5, lines 9-32)

Referring to the rejection of claims 7 and 15, the Applicant contends that the prior art (Davis et al.) does not teach nor disclose a marker of a code module. The Examiner respectfully disagrees and asserts that Davis et al. teaches and discloses once the BIOS code has been authenticated, the cryptographic device generates a predetermined signal (marker) of code, in order to begin and end execution. Once the instructions have been fetched to the vector, the BIOS code becomes authenticated. (See Column 6, lines 20-30)

Referring to the rejection of claims 8 and 16, the Applicant contends that the prior art (Davis et al.) does not teach nor disclose fields of a code module specifying an encryption algorithm used to encrypt the signature and that specify an algorithm used to compute the digest value. The Examiner respectfully disagrees and asserts that Davis

et al. teaches and discloses the cryptographic engine which performs encryption and decryption as DES-based or RSA based (i.e., encryption algorithms). The chipset contains code modules such as BIOS code for performing cryptographic functions within the IC devices (See Column 3, lines 31-40, Column 4, lines 21-40)

9. Therefore the rejection of claims 1-20 are maintained in view of the reasons above and in view of the reasons below.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Davis et al. (US Patent No. 6,401,208).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claims 1 and 11, Davis et al. discloses a machine readable medium and code module comprising: code to be executed by a computing device, and a signature that attests to the authenticity of the code, the signature encrypted such that the computing device is capable of decrypting the signature using a key embedded in a chipset of the computing device (See Column 3, lines 6-40)

Regarding claims 2 and 12, Davis et al. discloses the claimed limitation wherein the signature further attests to the authenticity of the data (See Column 2, lines 64-66)

Regarding claim 3, Davis et al. discloses the claimed limitation wherein the signature comprises a digest value computed from the code and the data (See Column 2, lines 56-61)

Regarding claims 4 and 13, Davis et al. discloses the claimed limitation wherein the digest value is computed based upon a SHA-1 hash of the code and the data (See Column 3, lines 37-40)

Regarding claim 5, Davis et al. discloses the claimed limitation wherein the signature comprises a hash of the code and the data (See Column 2, lines 53-67, Column 6, line 1)

Regarding claims 6 and 14, Davis et al. discloses the claimed limitation wherein a field that identifies an execution point from which the computing device executes the code (See Column 4, lines 41-59)

Regarding claims 7 and 15, Davis et al. discloses the claimed limitation wherein a marker that specifies the end of the code module (See Column 6, lines 20-30)

Regarding claims 8 and 16, Davis et al. discloses the claimed limitation wherein one or more fields that specify an encryption algorithm used to encrypt the signature and that specify an algorithm used to compute the digest value (See Column 2, lines 53-56)

Regarding claims 9 and 17, Davis et al. discloses the claimed limitation wherein a field that specifies an execution point of a post-code module from which the computing device initiates execution of the post-code module after executing the code module (See Column 5, lines 4-31)

Regarding claims 10 and 18, Davis et al. discloses the claimed limitation wherein the code comprises a terminate instruction that specifies an execution point of a post code module and that in response to being executed results in the computing device terminating execution of the code module and initiating execution of the post-code module from the execution point (See Column 5, lines 32-67, Column 6, lines 1-13)

Regarding claim 19, Davis et al. discloses a machine readable medium comprising: data pages comprising data, code pages comprising code to be executed by a computing device and a value that fingerprints the data pages and the code pages, the value encrypted such that the computing device is capable of decrypting the value using an asymmetric key embedded in a hardware component of the computing device (See Column 5, lines 66-67, Column 6, lines 1-13)

Regarding claim 20, Davis et al. discloses the claimed limitation wherein the value is encrypted via the RSA encryption algorithm and an asymmetric key paired with

the asymmetric key of the hardware component and the value comprises a SHA-1 hash of the data pages and the code pages (See Column 4, lines 29-40)

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Courtney D. Fields whose telephone number is 571-272-3871. The examiner can normally be reached on Mon - Thurs. 6:00 - 4:00 pm; off every Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emmanuel Moise can be reached on 571-272-3865. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

COA
cdf

February 3, 2006

Matthew D. Smithers
MATTHEW SMITHERS
PRIMARY EXAMINER
Art Unit 2137